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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,417	04/21/2005	Michio Kitahara	130677-0005	8534

35684 7590 12/11/2009

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EXAMINER	
HAMO, PATRICK	
ART UNIT	**PAPER NUMBER**
3746	

NOTIFICATION DATE	DELIVERY MODE
12/11/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/510,417	KITAHARA ET AL.	
	Examiner	Art Unit	
	PATRICK HAMO	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *5,6 and 13* is/are allowed.

6)☒ Claim(s) *1-4, 7-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to amendments filed July 16, 2009.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 4, 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshiage et al (JP 8-189468) in view of Hofman (5,110,271) and Kani et al (JP 2000-287843) and further in view of Oh et al. (2003/0206817).

In re claim 1, Oshiage et al teaches a piston pump capable of use as a blood pressure measuring device comprising: a cylindrical cylinder (7) having a cylinder head (8, 10); a piston (14) reciprocating inside the cylinder and along the inner wall of the cylinder via a seal; a suction port (16) through which gas is sucked into the pump chamber; the pump chamber defined between the cylinder and piston; an exhaust port (22) through which gas exhausts from the gas chamber; wherein the piston pump sucks the gas through the suction port and discharges the gas through the exhaust port as the volume of the pump chamber is changed by reciprocating motion of the piston; wherein the suction port is arranged at a top of the piston with a suction valve, which opens as the volume

of the pump chamber is increased; wherein the exhaust port is arranged at a top of the cylinder with an exhaust valve, which opens when the volume of the pump chamber is decreased. Oshiage appears to be silent to how the cylinder head is attached to the cylinder and how the suction valve is fixed to the piston.

Hofman teaches a pump with a cylinder 3 and a piston 9 reciprocating therein, the piston substantially cup-shaped like that of Pshiage and including inlet and outlet valves therein like the piston of Oshiage, and further teaching that the pump parts are preferably made of resin so that they can be easily manufactured by injection molding. Therefore it would have been obvious to a person having ordinary skill in the art to have made the cylinder and cylinder head of Oshiage of a resin so that it may be easily manufactured.

Hofman does not discuss whether the cylinder and cylinder head are integrally molded or whether they are separately produced then attached to each other. However, Kani teaches that for resinous materials for use in pump construction, ultrasonic welding is a preferable method for joining parts so as to prevent neighboring parts from being damaged (see Abstract, Advantage). Therefore, it would have been obvious to a person having ordinary skill in the art to have joined the injection molded cylinder parts by ultrasonic welding.

Oh teaches a suction valve assembly for a reciprocating compressor whereby the suction valve is fixed to the cylinder by a bolt 60 through a hole 113 for receiving the bolt. It would have been obvious to one of ordinary skill in the art to have modified the nominally attached suction valve of the pump of the art above with the fixed suction valve of Oh.

In re the limitation that an inner diameter of the cylinder does not exceed 20mm such that the piston can be utilized in a blood pressure measuring device, this constitutes a change in size that fails to patentably the distinguish over the art of record as it is just a scaling down of the art of record. See MPEP 2144.04(4)(a).

In re claim 2, please note valve 21 is on a top face of the piston in Oshiage.

In re claim 4, broadly interpreted, Oshiage teaches the piston having an opening (14) communicating with the suction port; wherein the opening is arranged outside the pump chamber so as to allow air sucked through the suction port into the pump chamber to pass a plenum capable of storing air to communicate with the opening; wherein the plenum is encompassed by an enclosure (1) having a plenum suction port (A); wherein the enclosure is a housing having a base portion fixed to the cylinder such that the base portion holds a motor (2).

IN re claim 7, Oshiage teaches a drive assembly for a having a piston engaging a coupling member (5) in such a manner that the coupling member is capable of turning in a circumferential direction thereof; and wherein the coupling member is ring shaped and connected to a connecting member (14) such that the engaged piston is reciprocated inside the cylinder.

IN re claim 10, Oshiage teaches a top plenum (10) defined by a top enclosure fixed to the top portion of the cylinder and a motor housing (1A, 1) fixed at a position spaced apart by a predetermined distance from the top portion

such that the cylinder is connected and fixed to at least a part of the motor housing; wherein the motor housing is composed of a base portion (1) fixed to the cylinder such that the base portion holds a motor for driving the piston and a cover portion (bottom housing potion of figure 1) disposed along the base portion such that the cover portion fastens the motor by sandwiching the motor with the base portion; wherein the cover portion and the base portion are engaged with a connecting mechanism capable of engagement and disengagement. Please note that anything connected to the housing in Oshiage can be considered the connecting mechanism because applicant has not provided any relationship with structure. For example, the motor can be considered the connecting mechanism because it is capable of being connected and disconnected from the housing.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1 above and further in view of Credle et al (6193109).

Oshiage teaches an exhaust valve at a top face of a cylinder outside of the pump chamber, but lacks the teaching of the valve being umbrella shaped. Credle teaches an umbrella shaped inlet (30) and exhaust valve (40). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have provided the exhaust valves of Oshiage with umbrella shaped valves merely as a design choice and to provide a simple cost effective valve structure.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1 in view of Spulgis (5188519).

In re claim 8, the assembly of the references as applied to claim 1 lacks the teaching of the piston assembly claimed. Spulgis teaches a piston (14, 26)with a recess portion formed continuously in the circumferential direction of the piston and engaged with a coupling member (38), the recess portion including at least a part of a first predetermined spherical surface; wherein the coupling member has a projection portion formed continuously in the circumferential direction such that the projection portion corresponds to the recess portion, the projection portion including at least a part of a predetermined second spherical surface to engage with the recess such that the projection portion is capable of turning in the circumferential direction and in an axial direction.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have provided the assembly of the references as applied to claim 1 with the piston connection assembly taught by Spulgis merely to provide flexible connection for the piston.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1 in view of Hatridge (3931755).

The references as applied to claim 1 lack the teaching of a self-lubricating material on the piston. Hatridge teaches a piston with a self-lubricating material. (Col. 4 lines 63-66).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have modified the piston pump of Oshiage to include a self lubricating piston as taught by Hatridge merely to reduce friction within the pump thus increasing the efficiency.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim 1 in view of Sramek (4,343,314).

The references as applied to claim 1 teach the piston pump according to claim 1 (see claim 1 rejection above) but fail to teach the following which is taught by Sramek: wherein the piston pump is connected to a blood pressure monitor (see Fig. 1 and Claim 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the piston pump apparatus of the references as applied to claim 1 in the blood pressure monitoring system of Sramek to achieve a blood pressure detecting system with a better precision (the measurements reflect the instantaneous blood pressure, column 2, line 5), and autonomous pumping means by having a motor based pump system. Please note that applicant has not claimed how the motor / pump are arranged in the blood pressure monitor.

Allowable Subject Matter

Claims 5, 6 and 13 are allowed.

Response to Arguments

Applicant's arguments with respect to the reference to Oshiage in regard to claim 1 have been fully considered but they are not persuasive. Applicant argues that Oshiage provides a lip seal between the piston and the cylinder and that therefore, presumably, Oshiage fails to teach that the peripheral surface of the piston slides directly on an inner wall of the cylinder. However, examiner respectfully disagrees with this characterization, and maintains the prior interpretation that the lip seal is an integral part of the piston and therefore may reasonably be interpreted as the outer peripheral surface of the piston. Even so, applicant contends that the limitation that the inner diameter of the cylinder is not greater than 20mm precludes the use of a lip seal because it would be impractical at such a small size to provide a lip seal. The examiner respectfully disagrees on this matter as well, as the assertion is not supported by any evidence provided and the examiner fails to see what would prevent one skilled in the art from constructing such a piston at any size, even sizes smaller than the claimed piston by magnitudes.

Applicant's remaining arguments with respect to claim 1, and claims 2-4 and 7-11 dependent therefrom, have likewise been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to claims 5, 6 and 13 have been fully considered and are persuasive. The rejections of claims 5, 6 and 13 have been withdrawn.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PATRICK HAMO whose telephone number is (571)272-3492. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746

/Patrick Hamo/
Patent Examiner, AU 3746